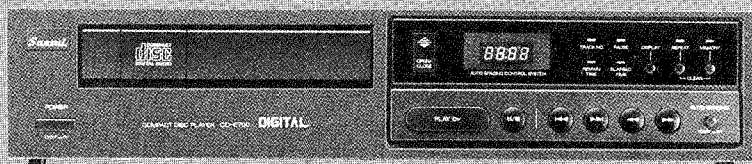


SERVICE MANUAL

COMPACT DISC PLAYER SANSUI CD-E750



CAUTION

1. Parts identified by the Δ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

● SPECIFICATIONS

Type	Compact disc digital audio system
Optical pick-up	3-beam laser
Error correction	CIRC
D/A conversion	16 bit linear
Frequency response	5 Hz ~ 20 kHz
Harmonic distortion	Less than 0.003% (1 kHz)
Signal-to-noise ratio	100 dB (IEC-A-WTD)
Dynamic range	Better than 95 dB
Wow and Flutter	Below measurable limits
Channel separation	Better than 90 dB (1 kHz)
Output voltage	2 V
Power requirements	110 ~ 120V/220 ~ 240V (50/60 Hz)
For U.S.A. and Canada	120 V (60 Hz)
Power consumption	14 watts
Dimensions	380 mm (15")W
	82 mm (3-7/32")H
	308.5 mm (12-5/32")D
Weight	4.5 kg (9.9 lbs.) net

* Design and specifications subject to change without notice for improvements.

Sansui

SANSUI ELECTRIC CO., LTD.

CAUTION

1. The symbols, UL, CSA, SA, BS, UK, EU, AS and XX on the parts list and the schematic diagram mean followings respectively.

UL	Manufactured for U.S.A market. (Underwriters Laboratories approved model.)
CSA	Manufactured for Canadian market.
SA	Manufactured for South African market.
BS, UK	Manufactured for United Kingdom market.
EU	Manufactured for European market.
AS	Manufactured for Australian market.
XX	Standard Version.
NON MARK	Common Parts.

2. Some printed circuit boards are not supplied as the assembled. To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.
3. Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capaci-

tors & resistors, which was issued on February 1983.

4. Abbreviations in this service manual are as follows.

• Abbreviations List

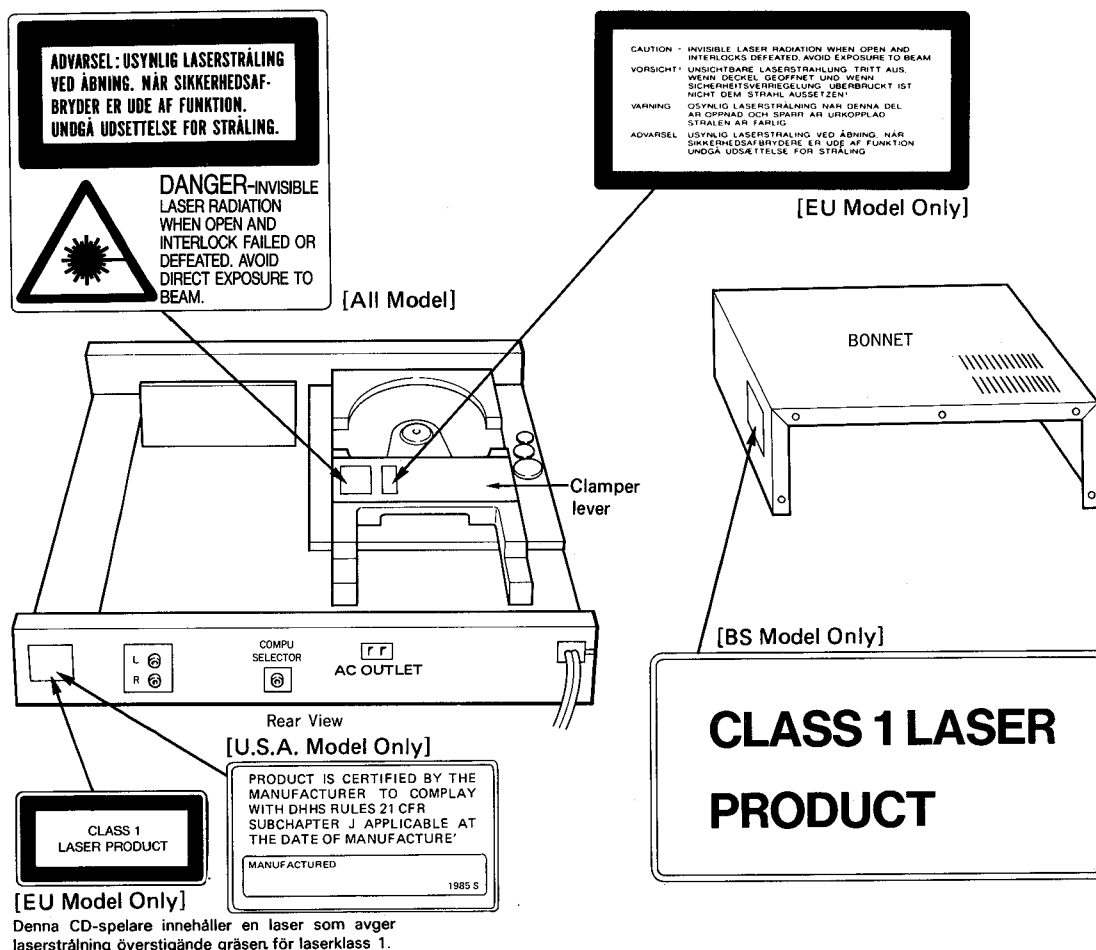
C.R.	: Carbon Resistor	E.B.L.	: Low Leak Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor	Ta.C.	: Tantalum Capacitor
Ce.R	: Cement Resistor	F.C.	: Film Capacitor
M.R.	: Metal Film Resistor	M.P.	: Metalized Paper Capacitor
F.R.	: Fusing Resistor	P.C.	: Polystyrene Capacitor
N.I.R.	: Non-Inflammable Resistor	G.C.	: Gimmic Capacitor
A.R.	: Array Resistor	A.C.	: Array Capacitor
C.C.	: Ceramic Capacitor	V.R.	: Variable Resistor
C.T.	: Ceramic Capacitor, Temperature Compensation	S.V.R.	: Semi Variable Resistor
E.C.	: Electrolytic Capacitor	SW.	: Switch
E.L.	: Low Leak Electrolytic Capacitor	Chip R.	: Chip Resistor
E.B.	: Bi-Polar Electrolytic Capacitor	Chip C.	: Chip Capacitor

Cautions concerning handling of the laser

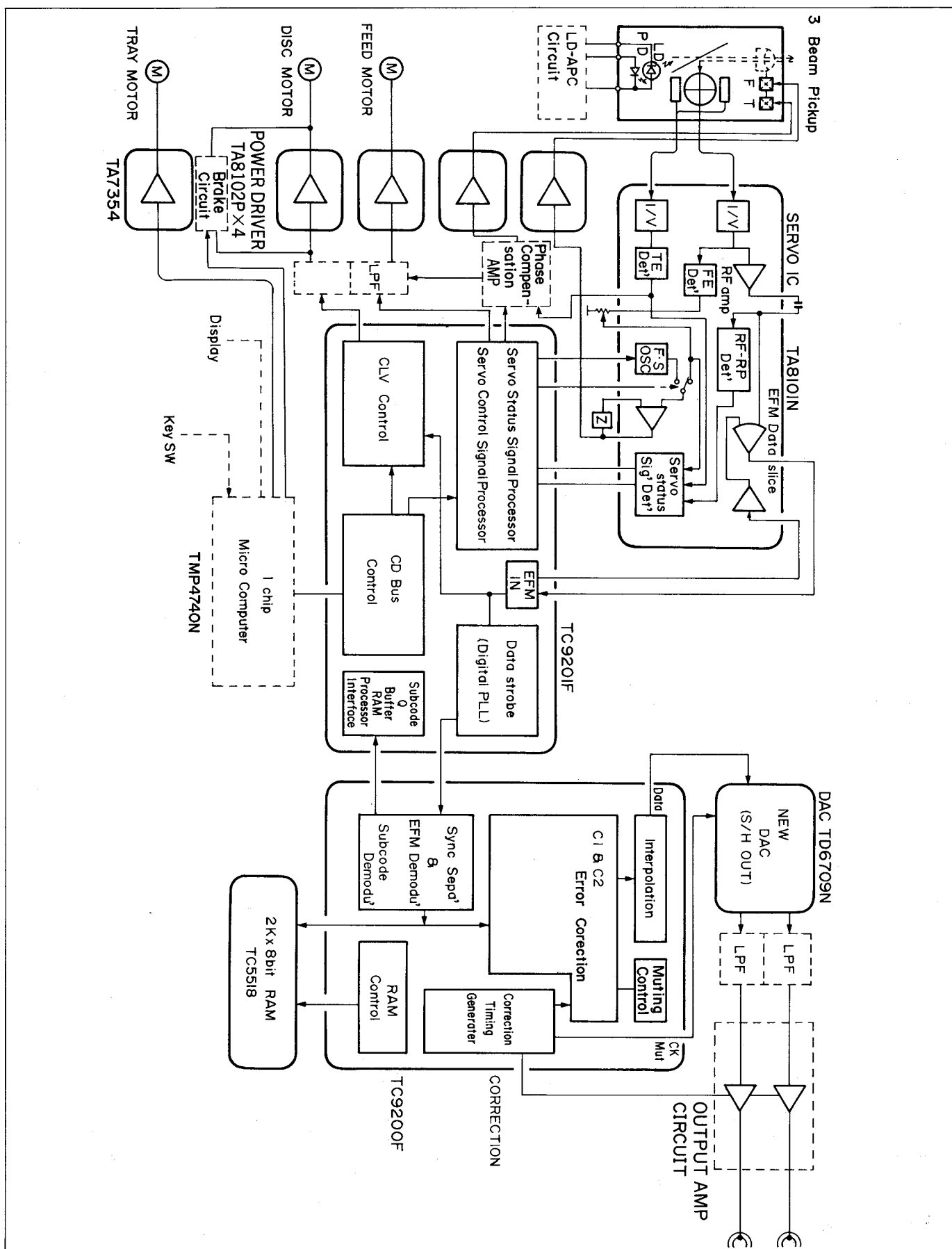
A. Cautionary points to minimize danger.

- Since the laser beam is extremely dangerous when viewed directly at its source, do not look directly at the laser pick-up assembly when the laser beam is being output. Additionally, even when viewing the laser beam only, be sure that you are at least 30cm away from it when it is in operation.
- When the laser beam is in operation, do not bring any part of your body into direct contact with or in close proximity to the convex lens.

B. The following label has been affixed to the unit, listing the proper procedure for working with the laser beam.

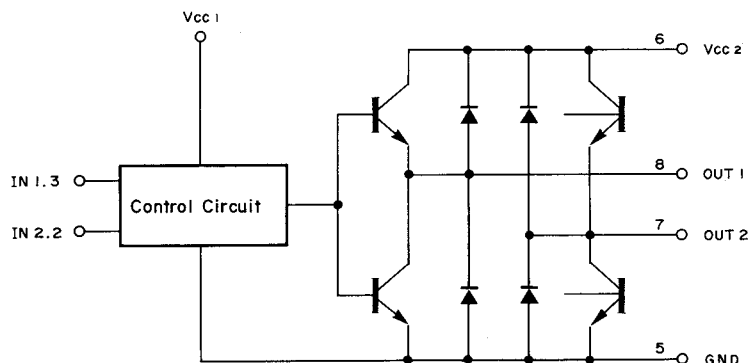


1. BLOCK DIAGRAM



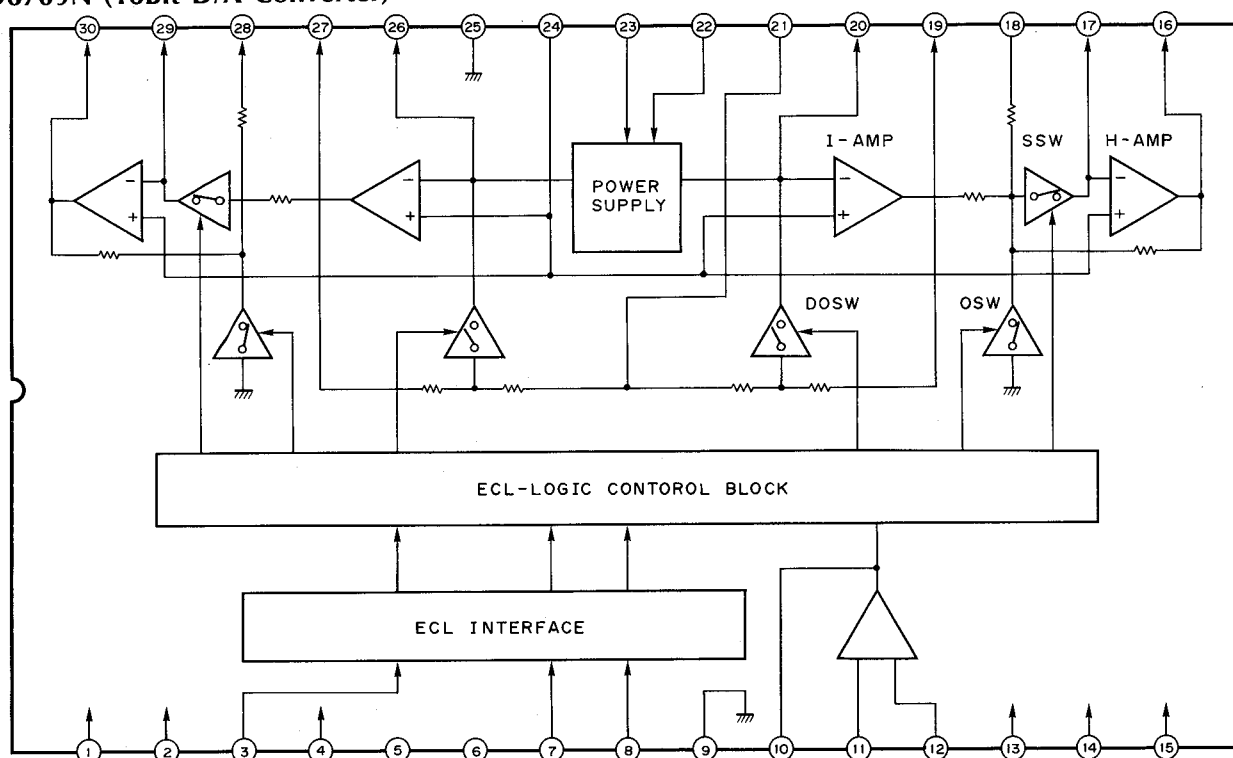
2. INTERIOR BLOCK DIAGRAM&TERMINAL FUNCTION OF IC

• TA7354P (Motor Drive)



IN 1	IN 2	OUT 1	OUT 2	MODE
1	1	L	L	BRAKE
0	1	L	H	FORWARD/REVERSAL
1	0	H	L	REVERSAL/FORWARD
0	0	HIGH IMPEDANCE		STOP

• TD6709N (16Bit D/A Converter)

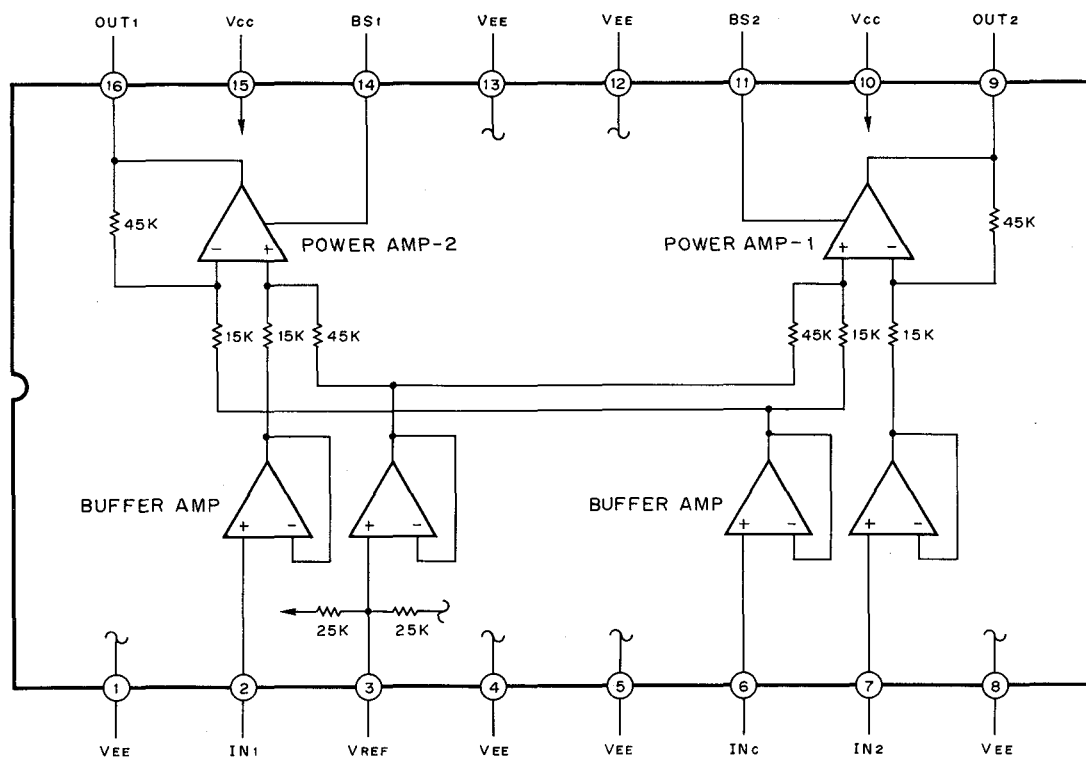


Terminal Functions < TD6709N >

Pin No.	Terminal Functions
1	Analog positive power voltage pin +5V
2	ECL logic analog power voltage pin +5V
3	Bit clock input pin Duty cycle: 50%, $f = 1.4112\text{MHz}$
4	Digital power voltage pin +5V
5, 6	Not connected
7	PCM dividal audio data input pin Inputs data serially (16 bits a time) from MSB, synchronically with BCK trailing edge.
8	Input data channel indication signal input pin Signal must be input synchronically with BCK trailing edge.
9	Ground pin
	Oscillator circuit I/O pin. The Colpitts oscillator circuit is formed by assembling L, C & R to SAW resonator or X'tal oscillator.
13	ECL logic power voltage pin +5V
14, 15	Analog negative power voltage pin -5V

Pin No.	Terminal Functions
16	Rch sample/hold amplifier output pin
17	Rch sample/hold amplifier negative input pin
18	Rch output offset adjustment pin. Normally connected to GNDA.
19	Rch integrated amplifier output pin
20	Rch integrated amplifier negative output pin
21	Discharge circuit reference voltage pin
22	Current source fine adjustment pin. Normally connected to GNDA.
23	Reference current input pin
24	Ground pin
25	Analog ground pin
26	Lch integrated amplifier negative output pin
27	Lch integrated amplifier output pin
28	Lch output offset adjustment pin. Normally connected to GNDA.
29	Lch sample/hold amplifier negative input pin
30	Lch sample/hold amplifier output pin

• TA8102P (Power Driver)

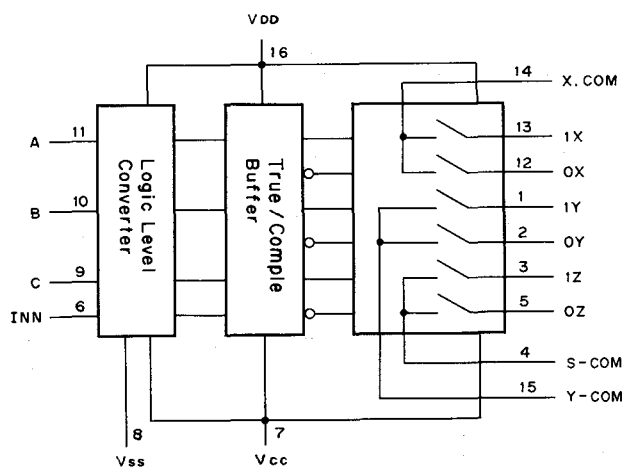


Terminal Functions < TA8102P >

Pin No.	Terminal Functions
1	Negative power voltage pin
2	Power amplifier 1 control signal input pin
3	Reference voltage source pin
4,5	Negative power voltage pin
6	Power amplifier 1/2 common control signal input pin
7	Power amplifier 1/2 control signal input pin
8	Negative power voltage pin

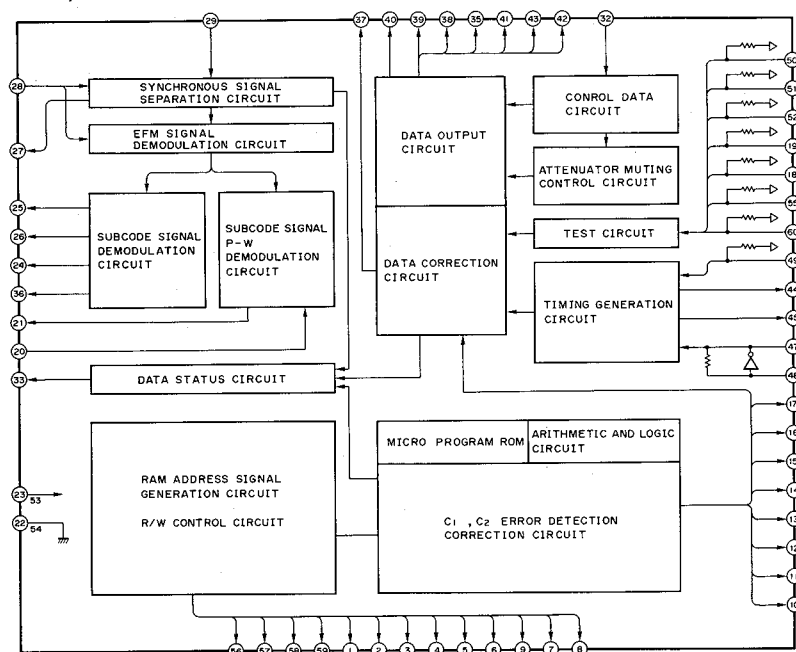
Pin No.	Terminal Functions
9	Power amplifier 2 output pin IN ₂ & IN _c error signal amplifier output
10	Positive power voltage pin
11	Bootstrap pin 2
12,13	Negative power voltage pin
14	Bootstrap pin 1
15	Positive power voltage pin
16	Power amplifier 1 output pin IN ₁ & IN _c error signal amplifier output

• TC4053BP/BF (Multiplexer)



CONTROL INPUT				"ON" CHANNEL
INHIBIT	C	B	A	
L	L	L	L	0X,0Y,0Z
L	L	L	H	1X,0Y,0Z
L	L	H	L	0X,1Y,0Z
L	L	H	H	1X,1Y,0Z
L	H	L	L	0X,0Y,1Z
L	H	L	H	1X,0Y,1Z
L	H	H	L	0X,1Y,1Z
L	H	H	H	1X,1Y,1Z
H	X	X	X	NONE
X: Don't Care				Ex

• TC9200F (Data processor)

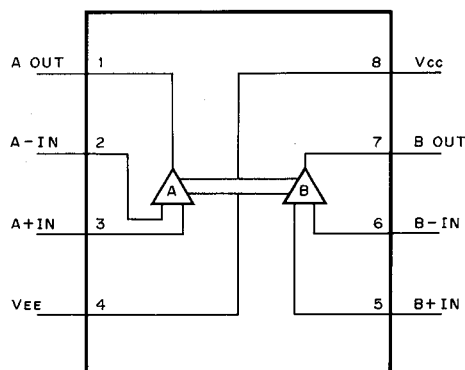


Terminal Functions < TC9200F >

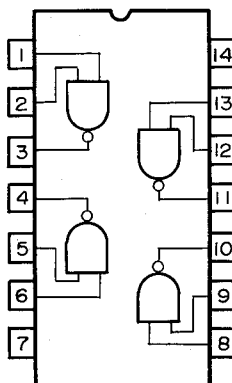
Pin No.	Terminal Functions
56~59	External RAM (8 bit x 2K) address signal pin
7	External RAM read/write signal output pin
8	External RAM check unable signal output pin
10~17	External RAM data bus line
18	Test pin
19	Normally used at "H" or open.
20	Subcode P-W and S0+S1, SBOKK data read clock pin
21	Subcode P-W output pin. Sets data in internal registers at the PFCK trailing edge. Outputs data serially when EXCK is input.
22	Ground pin
23	Power pin
24	Subcode signal Q data CRC check result output pin. "H" when there are no errors; "L" when an error occurs. The result of checking the previous block of Q data (80 bits) is output.
25	Subcode signal Q data output pin Q data is synchronized with PFCK trailing edge and output.
26	Subcode sync. S0 & S1 output pin When subcode sync. S0 or S1 is detected, outputs H level synchronically with PFCK trailing edge.
27	Playback frame periodic signal output pin Duty cycle approx. 50%; f=7.35kHz
28	Data read clock input pin Clock formed on the PLL circuit on the basis of the RF signal played back from the disc. 4.32MHz with PLL phase locked. Duty cycle: approx. 50%
29	EFM signal input pin Signal is input synchronically with PLCK trailing edge.
30, 31	Not connected
32	Control data serial input pin Inputs data frame-wise serially from TC9201F.
33	Processor status signal output pin Outputs serially the synchronization condition, correction process results and memory buffer capacity per frame.
34	Correction frame sync. signal output pin f=7.35kHz (X'tal divided)

Pin No.	Terminal Functions
35	Word clock output pin BCK divided into 16. Duty cycle: 50%; f=88.2kHz
36	Emphasis on/off indication signal output pin Q data control bit emphasis check output. "H" when emphasis is on. Active when CRC check result turns positive twice consecutively.
37	Output data correction flag output pin Adds a flag each 8 bits and outputs LSB and MSB flags (in that order) along with the data, and synchronically with SYCK trailing edge. "H" for correction data.
38	Channel clock output pin WDCK divided into 2. Lch data is output when level is "L", and Rch data when level is "H". Duty cycle: 50%, f=44.1kHz.
39	Bit clock output pin Duty cycle: 50%, f=1.4112kHz
40	Data output pin Outputs data serially from MSB, synchronically with BCK trailing edge.
41	Symbol clock output pin BCK divided into 8. Duty cycle: 50%, f=176.4kHz
42	Rch data aperture signal output pin
43	Lch data aperture signal output pin
44	8M clock output pin X'tal (16.9344MHz) divided into 2.
45	17M clock output pin X'tal (16.9344MHz) buffer output.
46	Not connected
47, 48	Crystal oscillator connection pin. Connected to a crystal oscillator, generates the clock signal required by the system. X'tal 16.9344MHz
49	Clock selection pin. Sets X-I input clock to 16.9344MHz when "H" or open, and to 8.4672MHz when "L".
50~52	Test pin Normally used at "H" or open.
53	Power pin
54	Ground pin
55, 60	Test pin

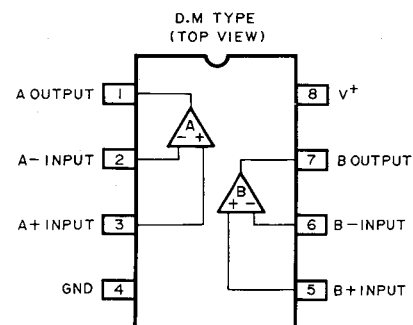
• NJM2068D (Operational Amp.)



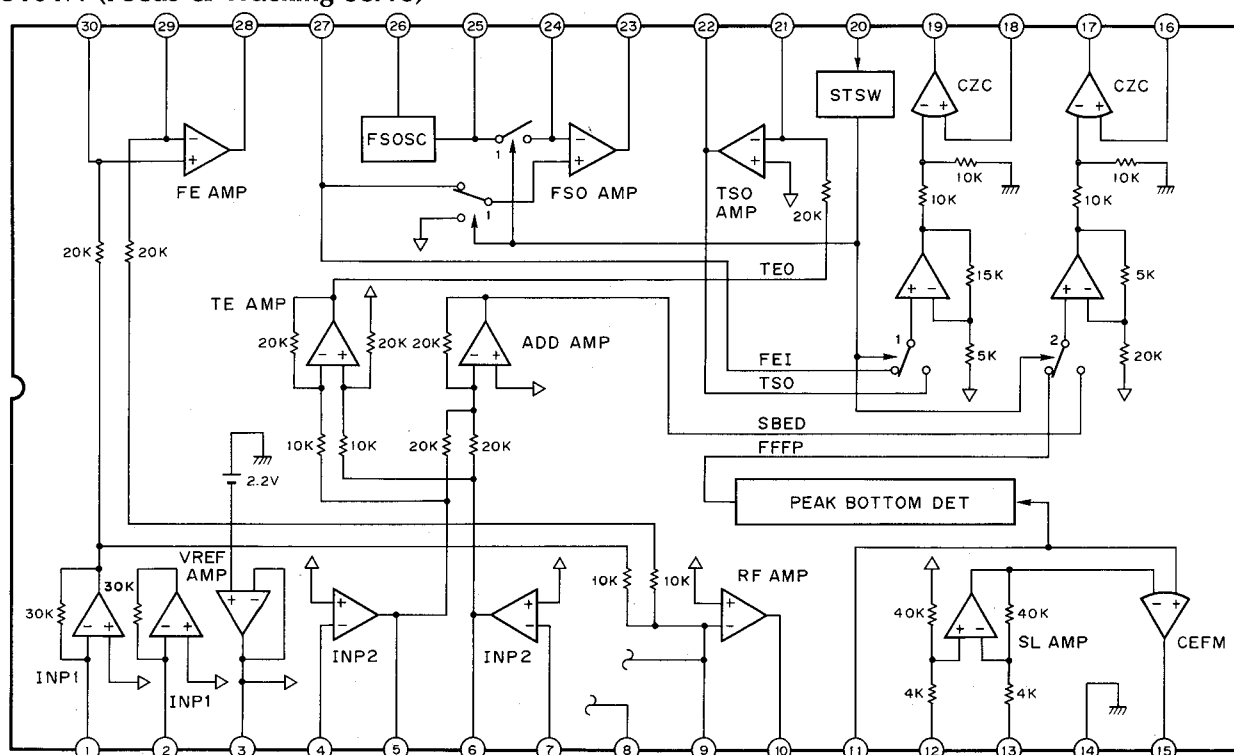
• TC4011BP/BF (NAND Gate)



• NJM2904D (Operational Amp.)



• TA8101N (Focus & Tracking Servo)

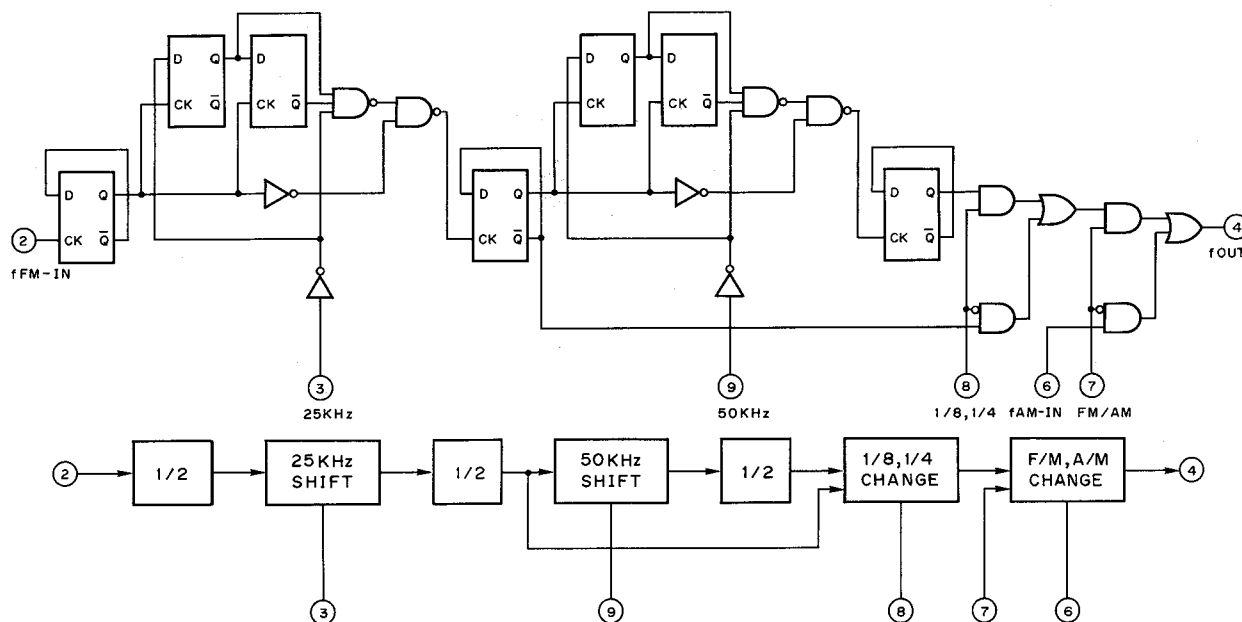


Terminal Functions < TA8101N >

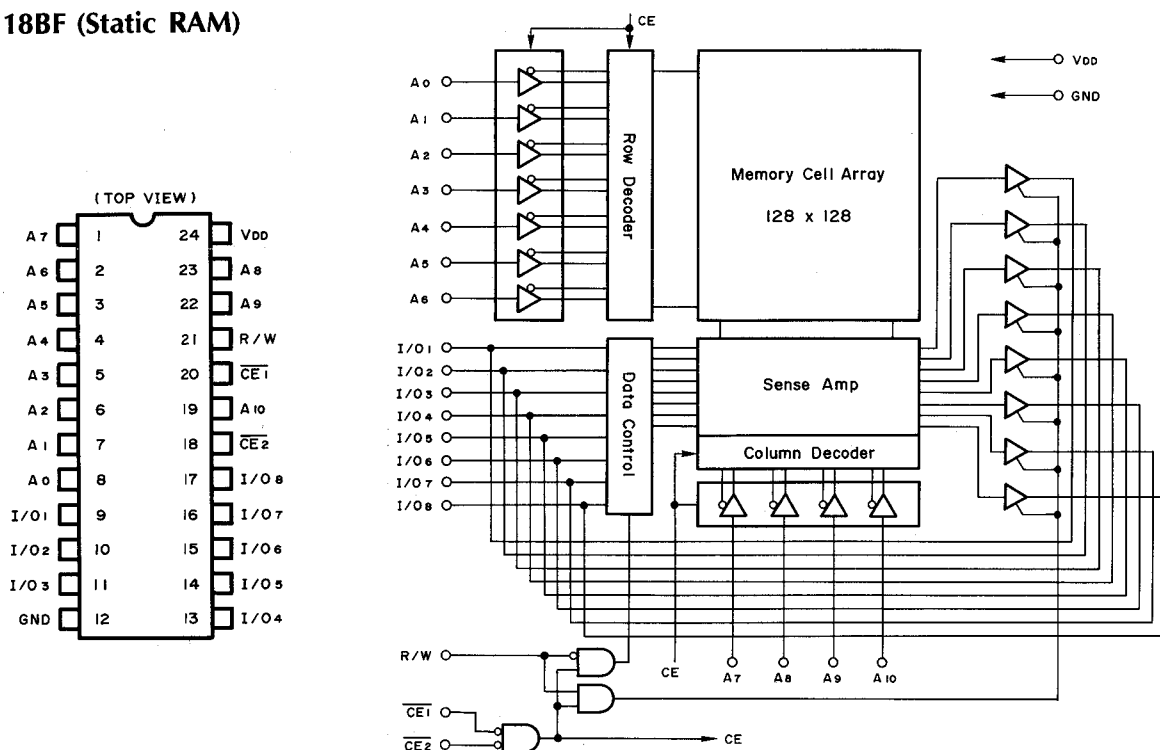
Pin No.	Terminal Functions
1,2	Main beam (1-V) converter 1, 2 input pins
3	Reference voltage source output pin (+2.2V)
4	Sub-beam (1-V) converter 1 input pin
5,6	Sub-beam (1-V) converter 1, 2 input pins
7	Sub-beam (1-V) converter 2 input pin
8	Power pin (+5V)
9	RF amplifier antiphase input pin
10	RF amplifier output pin
11	RF amplifier input pin
12	Slice level control amplifier in-phase input pin
13	Slice level control amplifier antiphase input pin
14	Ground pin
15	EFM signal data slicer output pin Open collector output
16	Status comparator 2 in-phase input pin

Pin No.	Terminal Functions
17	Status comparator 2 output pin Open collector output.
18	Status comparator 1 in-phase input pin
19	Status comparator 1 output pin Open collector output.
20	Analog switch control signal input pin
21	Tracking servo amplifier antiphase input pin
22	Tracking servo amplifier output pin
23	Focus servo amplifier output pin
24	Focus servo amplifier antiphase input pin
25	Focus search signal generation condenser connection pin
26	Built-in current source control pin
27	Focus error signal input pin
28	Focus error amplifier output pin
29	Focus error amplifier antiphase input pin
30	Focus error amplifier in-phase input pin

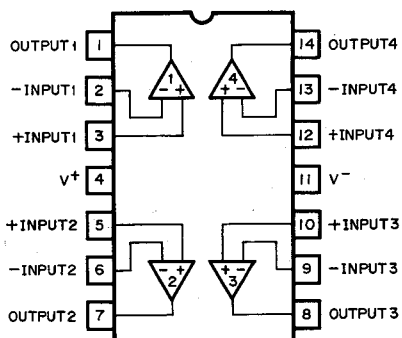
• TD6102P (Pre-Scaler)



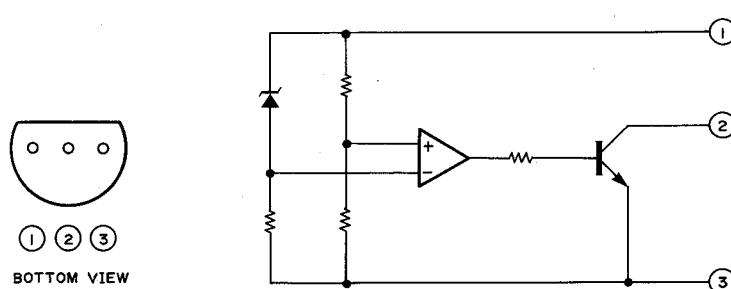
• TC5518BF (Static RAM)



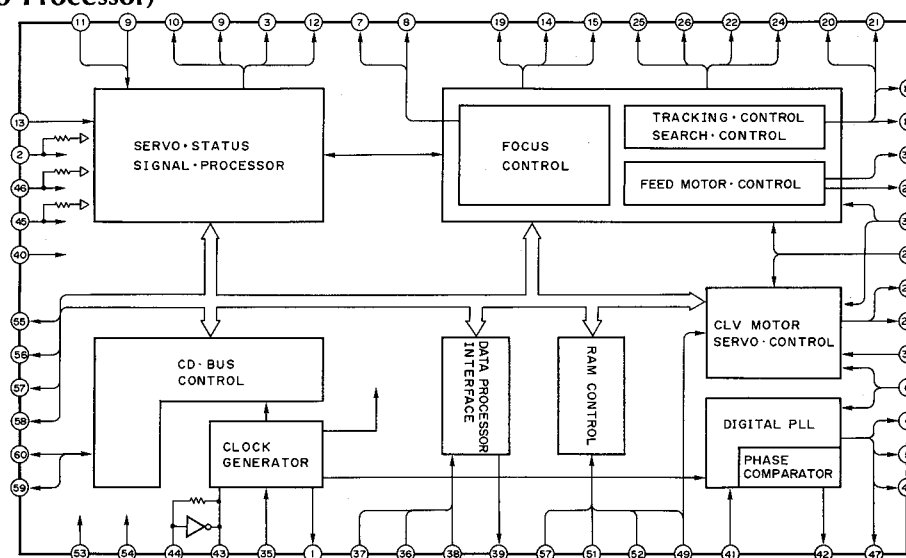
• NJM3403AD (Operational Amp.)



• PST520D (Reset IC)



• TC9201F (Servo Processor)

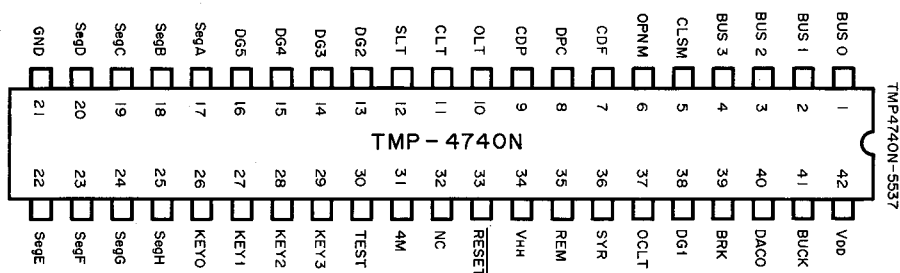


Terminal Functions < TC9201F >

Pin No.	Terminal Functions
1	4M clock output pin $f = 4.2336\text{MHz}$ (X'tal divided)
2	Reset input pin. Normally "H" or open. "L" for internal system reset.
3	Laser diode drive circuit control signal output pin
4	EFM signal normal output pin
5	EFM signal inversed output pin
6	EFM signal input pin
7	Focus actuator drive signal polarity indication output pin
8	Built-in DA converter output pin 2
9	External comparator output signal input pin 2
10	Built-in DA converter output pin 1
11	External comparator output signal input pin 1
12	Pickup servo mode indication output pin
13	Built-in DA converter power pin (+2.1V)
14, 15	Focus gain adjustment analog switch output pin
16, 17	Tracking gain adjustment analog switch output pin
18	Focus actuator brake signal output pin
19	Focus actuator drive signal output pin
20	Tracking actuator kick signal output pin
21	Defect detection pin. Only during normal playback, detects PU output signal defects, setting electric potential to VR2 during detection. Normally "Hi-Z".
22	Tracking servo loop middle/upper range phase compensator commutation analog switch input pin
23	Power pin
24	Tracking servo loop lower range gain commutation analog switch input pin
25	Tracking error signal sample/hold analog switch input pin
26	Tracking servo operation on/off analog switch input pin
27	Forward servo operation on/off analog switch input pin
28	Disc motor CLV servo AFC output pin
29	Disc motor CLV servo APC output pin
30	Disc motor drive circuit gain commutation analog switch input pin
31	Forward servo loop gain commutation analog switch input pin
32	Pickup servo circuit & disc servo circuit reference power pin +2.1V
33	Feed motor forward/backward drive control signal output pin
34	Pickup servo circuit & disc servo circuit power pin. +4.2V

Pin No.	Terminal Functions
35	8M clock input pin $f = 8.4672\text{MHz}$ (X'tal divided)
36	Control data transmission/reception clock input pin
37	Correction frame periodic signal input pin $f = 7.35\text{kHz}$
38	Status signal serial input pin
39	Control data serial input pin
40	Test pin. Normally "L".
41	PLL circuit selection pin. "H": analog PLL circuit "L": digital PLL circuit
42	PLL phase-comparison signal output pin
43, 44	Crystal oscillator connection pin. Connected to a crystal oscillator, generates the clock required by the system.
45, 46	Test pin (w/pull-up resistance) Normally "H" or open.
47	EFM signal output pin
48	Bit clock output pin
49	Playback frame periodic signal input pin. SUEQ, SBOK and SOS1 are input synchronically with the trailing edge. Used as the CLV servo AFC & APC relative frequency.
50	Subcode signal simultaneous pattern S0, S1 input pin
51	Subcode signal Q data input pin. Regarding 80 bits of Q data as one block, inputs it serially and saves it on the internal RAM.
52	Subcode signal CRC check result input pin. "H" while there are no errors, otherwise "L".
53	Power pin. +5V
54	Ground pin
55~58	Commands & data transmission/reception bus line. Inputs commands and data during BUCK leading edge. Outputs the input data to the bus while BUCK is "H".
59	Commands & data processing control I/O. turns "L" (input) when the microcomputer sends the first command word. When all commands and data have been correctly received, this pin turns to "L" (output) while BUCK is "L". Used as acknowledge (ACK) for the microcomputer. Normally "H".
60	Commands & data transmission/reception clock input pin. "H" while it is not receiving anything from the microcomputer. "L" during reception, for $9\mu\text{s}$ or more. "H" periods are $4\mu\text{s} - 90\mu\text{s}$ long. Switching between DA/CO.BUS 0 - $3.4\mu\text{s}$ after BUCK trailing edge.

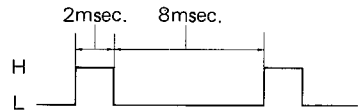
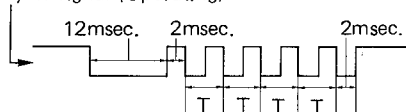
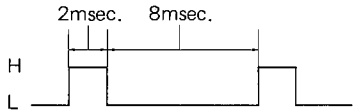
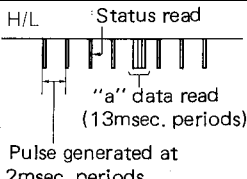
• TMP4740N-5537 (Micro Computer)



Terminal Functions < TMP4740N-5537 >

Pin No.	Port	Signal	I/O	Initial level	Function/Operation	During Playback Mode	During Stop Mode
1	R4	R40 BUS 0	I/O	H	I/O data bus with the servo control IC TC9201	"H" or "L"	
2		R41 BUS 1	I/O	H	I/O data bus with the servo control IC TC9201	"H" or "L"	
3		R42 BUS 2	I/O	H	I/O data bus with the servo control IC TC9201	"H" or "L"	
4		R43 BUS 3	I/O	H	I/O data bus with the servo control IC TC9201	"H" or "L"	
5	R5	R50 CLSM	OUT	L	Tray motor control output "H" for tray closing operation.	"H"	
6		R51 OPNM	OUT	L	Tray motor control output "H" for tray opening operation.	"H"	
7		R52 CDF	OUT	L	CD function signal Outputs a 100msec. positive pulse when PLAY key is activated.	"L"	
8		R53 DPC	OUT	L	Deck pause control signal output "H" for starting C-DECK, "L" for stopping it.	"H" or "L"	"L"
9	R6	R60 CDP	IN	X	CD pause control signal input When "L" the DC player enters the PAUSE mode (not PLAY).	"H" or "L"	
10		R61 OLT	IN	X	Open limit switch input Becomes "L" when the tray has fully opened.	"H"	
11		R62 CLT	IN	X	Close limit switch input Becomes "L" when the tray has been fully closed and the disc clamped.	"L"	
12		R63 SLT	IN	X	Start limit switch input Becomes "L" when PU enters the TOC area.	"H" or "L"	"L"
13	R7	R70 DG 2	OUT	L	Display selection signal output (selected when "H") Key scan output		
14		R71 DG 3	OUT	L	Display selection signal output Key scan output		
15		R72 DG 4	OUT	L	Display selection signal output		
16		R73 DG 5	OUT	L	Display selection signal output		
17	P1	P10 Seg A	OUT	H	Segment display output (turns on when "L") (1) "a" segment (2) Colon 1	H/L	
18		P11 Seg B	OUT	H	Segment display output (turns on when "L") (1) "b" segment (2) PAUSE Indicator	H/L	
19		P12 Seg C	OUT	H	Segment display output (turns on when "L") (1) "c" segment (2) Colon 2	H/L	
20		P13 Seg D	OUT	H	Segment display output (turns on when "L") (1) "d" segment (2) REPEAT Indicator	H/L	

< TMP4740N-5537 >

Pin No.	Port	Signal	I/O	Initial level	Function/Operation	During Playback Mode	During Stop Mode
22	P2	P20 Seg E	OUT	H	Segment display output (turns on when "L") (1) "e" segment (2) TNO Indicator	H/L	
23		P21 Seg F	OUT	H	Segment display output (turns on when "L") (1) "f" segment (2) LAP Indicator	H/L	
24		P22 Seg G	OUT	H	Segment display output (turns on when "L") (1) "g" segment (2) REMAIN Indicator	H/L	
25		P23 Seg H	OUT	H	Segment display output (turns on when "L") (1) "h" segment (2) MEMORY Indicator	H/L	
26	K0	K00 KEY 0	IN	X	Key sense signal input (1) PLAY (2) DISPLAY (3) Don't STOP	When the key is activated: 	
27		K01 KEY 1	OUT	X	Key sense signal input (1) PAUSE (2) MEMORY		
28		K02 KEY 1	OUT	X	Key sense signal input (1) UP (2) REPEAT		
29		K03 KEY 3	OUT	X	Key sense signal input (1) DOWN (2) EJECT		
35	R8	R80 REM	I/O	"H" (INPUT MODE)	Remote control data input	Initial level is "H" 1 cycle signal (Operating)  T switches between 4 and 8msec. according to data	
36		R81 SYR	IN	X	Synchro recording mode setting input Turns synchro on when "L", off when "H".	"H" or "L"	
37		R82 OCLT	IN	X	Tray motor overcurrent detection signal input	"H"	
38		R83 DG 1	OUT	L	Display selection signal output (selected when "H")		
39	R9	P90 BRK	OUT	L	Disc motor brake drive signal output Outputs a pulse within 1.2sec. of stopping the disc motor.	"L"	
40		P91 DA/CO	I/O	"H" (INPUT MODE)	CD bus drive signal	"H"/"L"	"H"
41		R92 BUCK	OUT	H	Shift clock for data transmission with TC9201	 Pulse generated at 2msec. periods	
21		VSS	GND		Power (0V)		
30		TEST	TEST	IN	Test mode pin X Connected to GND		
31		XIN	4M	IN	Basic clock input pin		
32		XOUT	NC	OUT	Open		
33		RESET	RESET	IN	Initialize signal input Initialize operation carried out when "L".		
34		V _{HH}	V _{HH}		Memory backup power Connected to VDD.		
42		V _{DD}	V _{DD}		Power (+5V)		

3. DISASSEMBLY PROCEDURES

(for parts whose numbers are mentioned in the text, refer to the exploded view of mechanism on page 14)

1. LASER PICKUP REMOVAL

■ Cautions when Removing The Laser Pickup For Repairing

1. Before removing the laser pickup, short-circuit the terminals by soldering. This is to prevent damage to the pickup during removal operation (Fig. 3-3 & 3-4).
2. After soldering is completed, remove connectors and lead cables. Be careful not to touch the pickup terminals.
3. When installing the laser pickup, detach the soldered terminals after attaching the connectors and lead cables.

■ Cautions When Replacing The Laser Pickup

1. Before replacing the laser pickup, attach lead cables to connectors and then detach the PCB laser diode protection soldering (Fig. 3-1 & 3-2).
 - * The solder must be grounded, or otherwise free from current leak.
 - * Cover the work table with a grounded inductive mat.
 - * Before starting, be sure to touch the inductive mat or ground cable with both hands to prevent charging of your body.

■ Pickup Connector Attachment Points

Fig.3-1

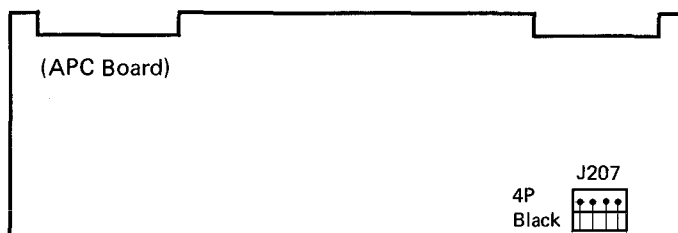


Fig.3-2

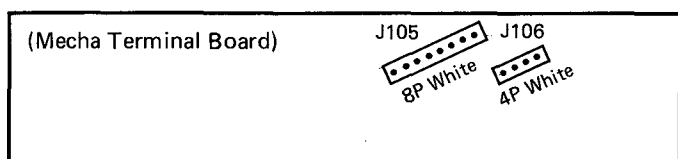


Fig.3-3

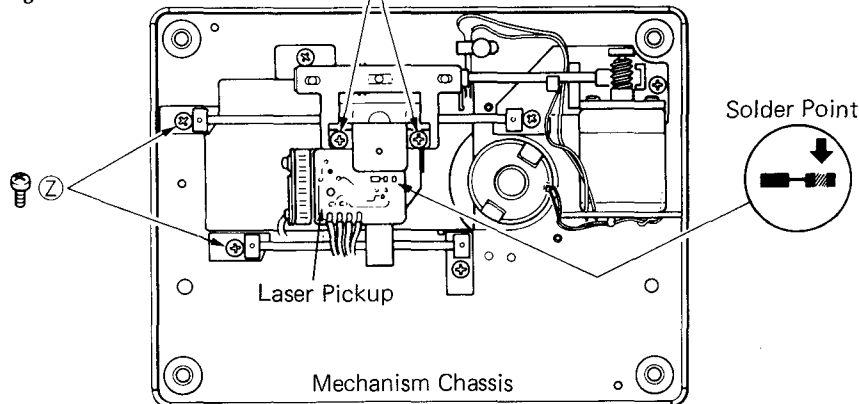
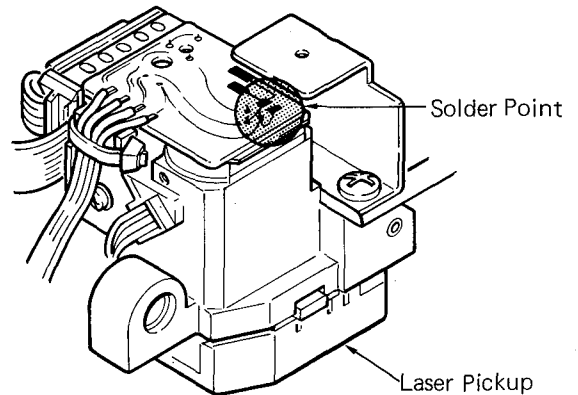


Fig.3-4



■ Laser Pickup Removal

1. Remove the bonnet.
2. Press the OPEN button, opening the disc tray ⑫.
3. Turn power off.
4. Remove the disc tray stopper ⑩ and then the disc tray itself, pulling it towards you.
5. Remove the 4 mechanism chassis fixing screws ④①.
6. Turn the mechanism chassis upside down.
7. Solder the pickup terminals as shown in Fig. 3-3.
8. Detach 3 lead connectors as shown in Fig. 3-1 & 3-2.

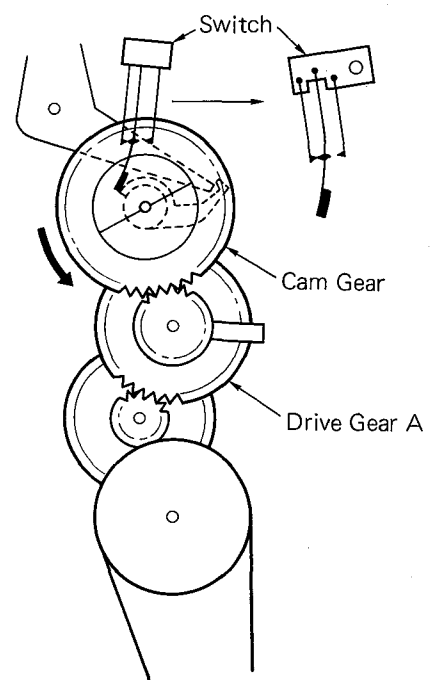
■ Laser Pickup Installation

1. Insert the 3 pickup lead connectors into the APC mechanism PCB (Fig. 3-1 & 3-2).
2. Fix pickup to mechanism chassis with fixing screws ④ and ⑤ (Fig. 3-3).
3. Detach the short-circuited pickup terminal soldering (Fig. 3-3,3-4).
 - * The terminal is factory soldered for protection, so use the same procedure when replacing the pickup with a new one.

2. Caution When Inserting The Disc Tray

Before inserting the disc tray, turn the cam gear counterclockwise until the leaf switch moves to its outermost position as shown in the following figure.

Fig.3-5

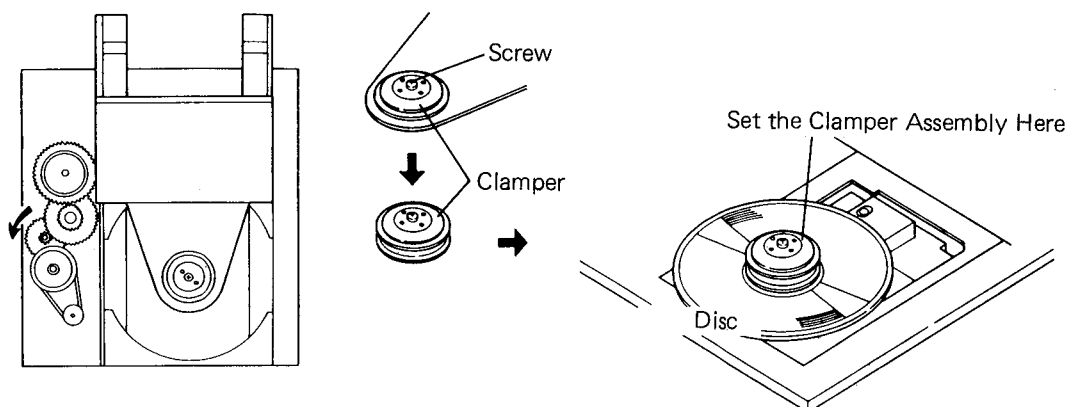


4. ADJUSTMENTS (For measuring device connection and adjustment points, refer to Fig. 4-4).

■ Preparations For Adjustment

1. Turn power off.
2. Turn the mechanism gear, sliding the disc tray out.
3. When the disc tray is fully out, set the clamber lever in upright position.
4. Remove the disc tray stoppers and fixing screws, and remove the disc tray sliding it towards you.
5. Remove the clamber assembly screws attached to the clamber lever, and then the clamber assembly itself. Join upper and lower clamber parts with screws, and use the assembly as a jig.

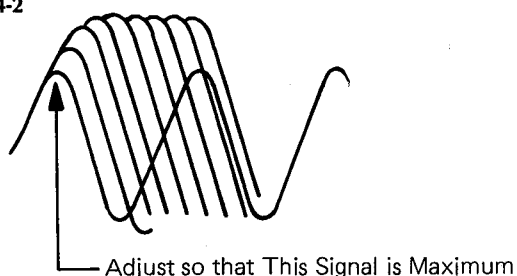
Fig.4-1



1. Focus Balance & Offset Adjustment

1. Put the unit in stop mode.
2. Connect an oscilloscope between TP17 (FE) and TP 5 (Vref) (focus error signal) (DC range: 5mV/DIV).
3. Adjust the semi-fixed R339 (100K Ω) so that DC offset becomes 0V $\pm$ 10mV.
4. Playback the music recorded disc (any track No. will do).
5. Connect an oscilloscope between VREF and RF (AC range: 0.2V/DIV, 0.5 μ sec/DIV).
6. Adjust the semi-fixed R342 (20K Ω) so that RF signal 3T component is maximum.

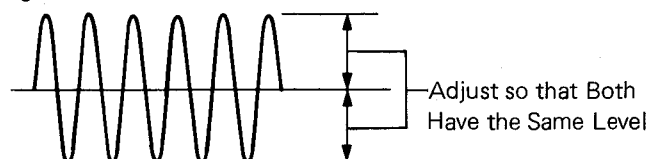
Fig.4-2



2. Tracking Error Balance & Offset Adjustment

1. Put the unit in stop mode.
2. Connect an oscilloscope between TP18 (TE signal) and VREF (DC range: 5mV/DIV).
3. Adjust the semi-fixed R337 (100K Ω) so that DC offset becomes 0V $\pm$ 10mV.

Fig.4-3



4. Playback the music recorded disc.
5. Set the oscilloscope range to DC 0.5V/DIV, 5msec/DIV.
6. Search using the UP/DOWN keys.
7. Adjust the semi-fixed R309 (100K Ω) so that the search tracking errors DC offset becomes 0V.

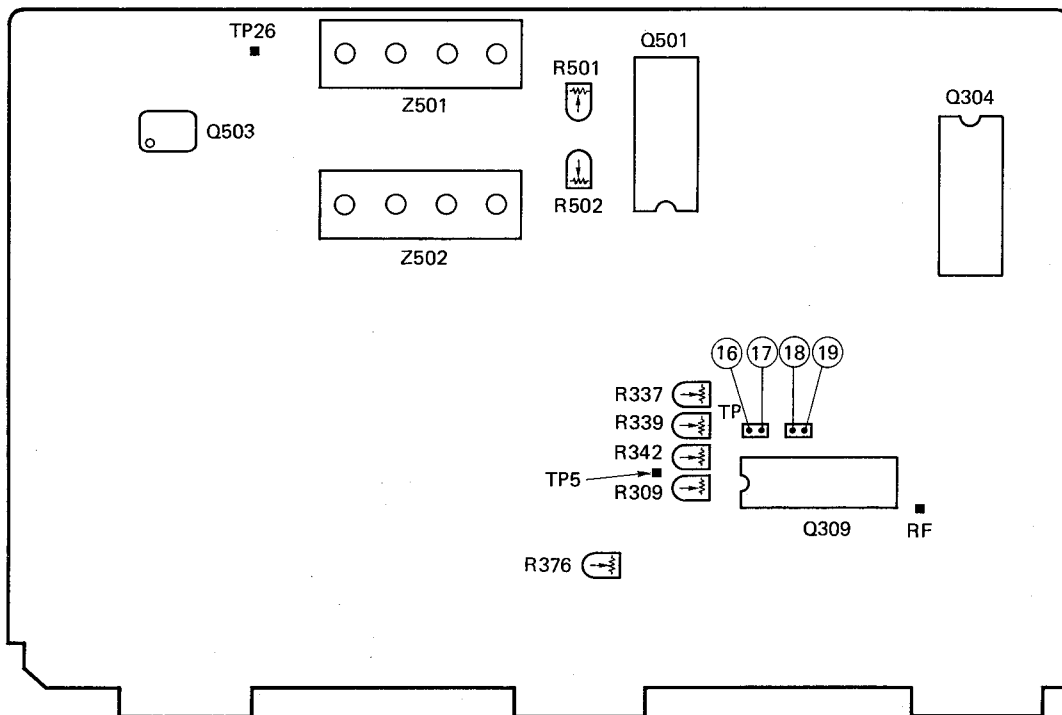
3. Analog Output Offset Adjustment

This adjustment is not necessary when replacing the pickup

1. Turn power on.
2. Connect a DC voltmeter or oscilloscope to the main PCB Q503 1 pin (Lch) & 7 pin (Rch), and adjust semi-fixed R502 50K Ω (Rch) so that DC range offset becomes $0 \pm 10\text{mV}$.

Fig.4-4

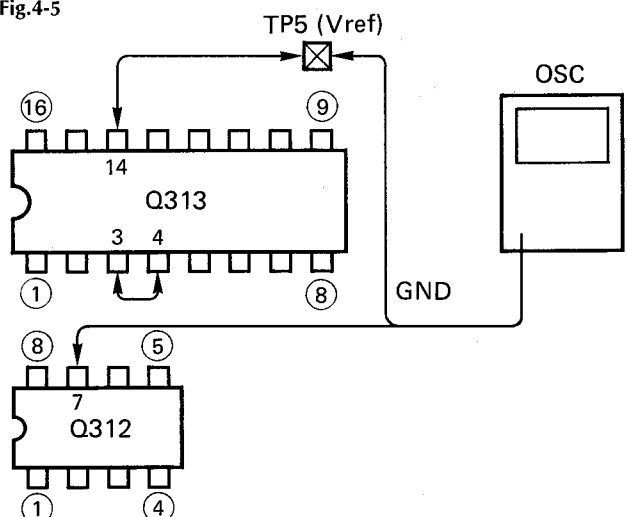
Main PCB Adjustment Points



4. Disc Motor Brake Adjustment (after Q312(NJM2904D) or Disc Motor replacement).

1. Shortcircuit the Q313 (TC4053BP) 3 and 4 pins.
2. Connect 14 pin to V_{REF} (TP5).
3. Turn power on.
4. Connect an oscilloscope between the Q312 7 pin and V_{REF} (TP5) (5mV range).
5. Adjust semi-fixed VR R376 (50K Ω) so that voltage becomes $0 \pm 5\text{mV}$.

Fig.4-5



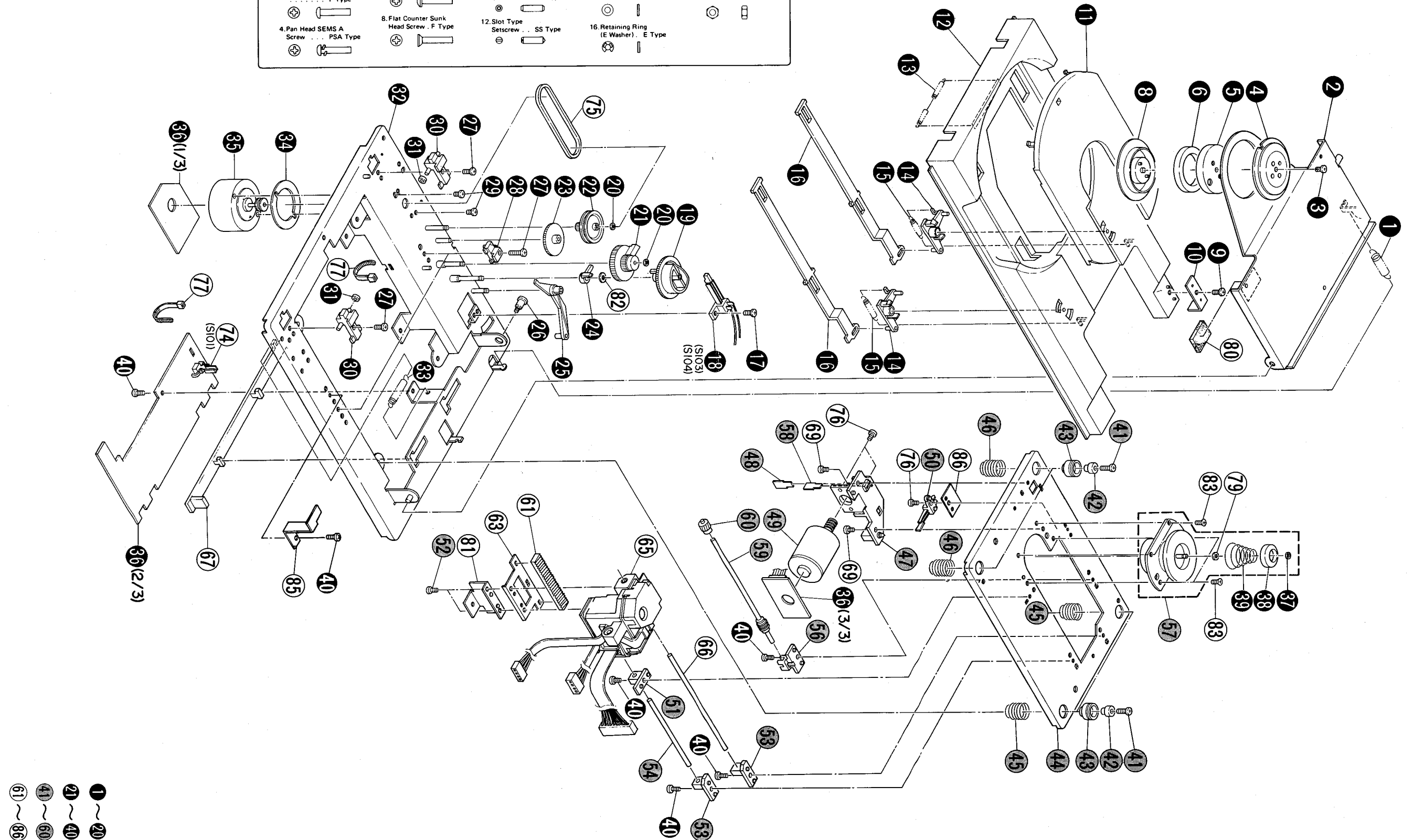
5. EXPLODED VIEW & PARTS LIST

5-1. Exploded View of Mechanism

•Abbreviations

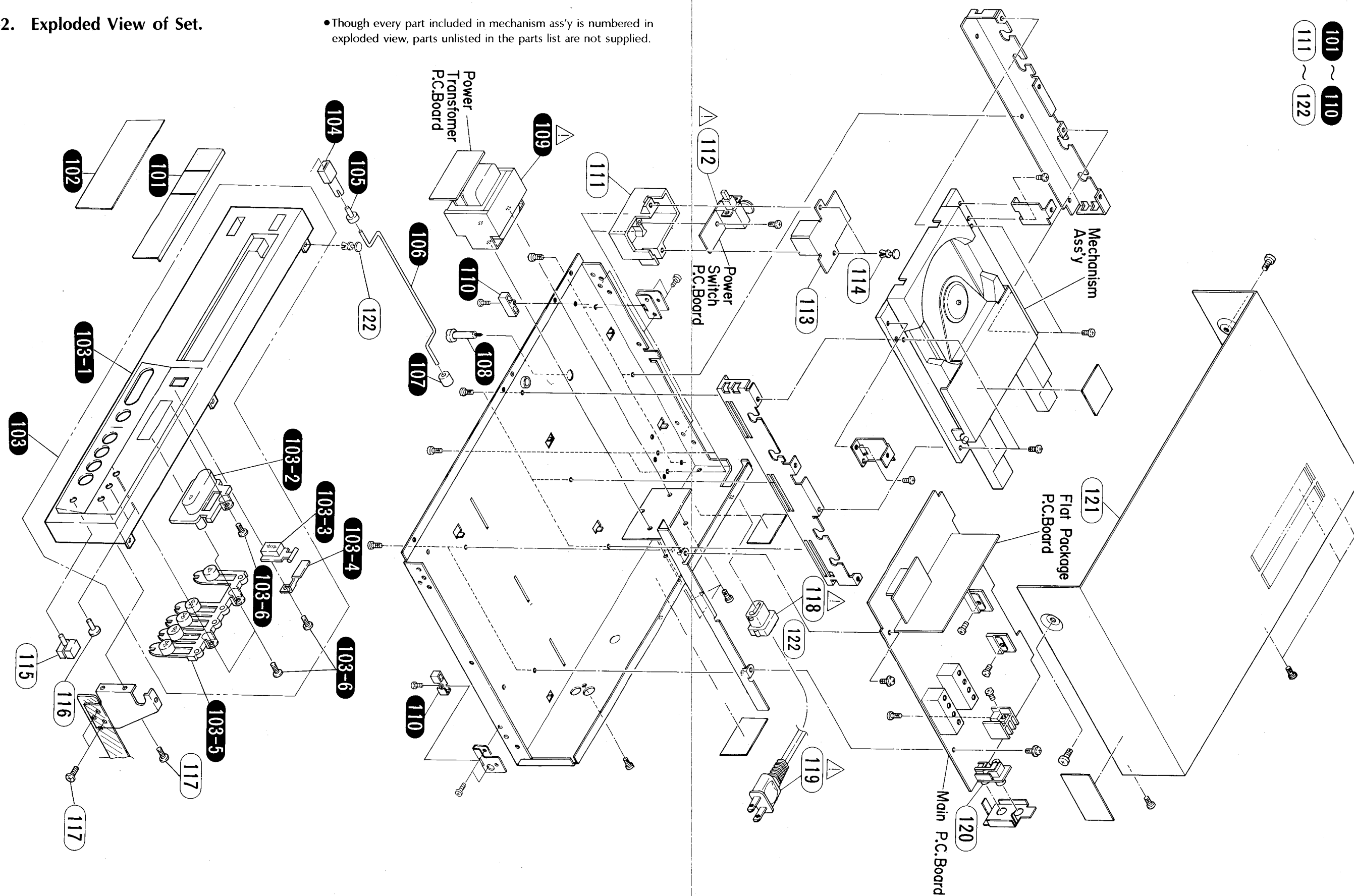
1. Pan Head Tapping Screw . . . PT Type	5. Pan Head SEMS B Screw . . . PSB Type	9. Flat Counter Sunk Wood Screw . . . FC Type	13. Binding Head SEMS B Screw . . . BSB Type	17. Toothed Lock Washer (External) TLE Washer
2. Washer Head Tapping Screw . . . WT Type	6. Binding Head SEMS F Screw . . . BSF Type	10. Round Head Wood Screw . . . RH Type	14. Spring Washer S Type	18. Wave Washer
3. Pan Head Screw Screw . . . P Type	7. Binding Head Screw . . . B Type	11. Hex. Socket Setscrew . . . SC Type	15. Plain Washer P Type	19. Hexagon Nut H Type Nut
4. Pan Head SEMS A Screw . . . PSA Type	8. Flat Counter Sunk Head Screw . F Type	12. Slot Type Setscrew . . . SS Type	16. Retaining Ring (E Washer) . E Type	

• Though every part included in mechanism ass'y is numbered in exploded view, parts unlisted in the parts list are not supplied.



5-2. Exploded View of Set.

• Though every part included in mechanism ass'y is numbered in exploded view, parts unlisted in the parts list are not supplied.



< Mechanism Section >

Parts List

Parts No.	Stock No.	Description
1	58092900	Spring, Clamper Lifter
2		Clamper Lever Ass'y
3	58093000	Screw, 2×5 B Type
4	58040000	Clamper Plate
5	58039700	Clamper Yoke
6	58039800	Magnet
8	58039900	Clamper
9	58075700	Screw, 2.6×6 B Type
10	58035000	Stopper Plate
11	58092200	Sub Tray
12	58039400	Disc Tray
13	58075800	Spring
14	58039200	Tray Lever
15	58093100	Spring
16	58039300	Tray Slider
17	58075900	Screw, 2.6×6 B Type
18	58039100	Leaf Switch
19	58037800	Cam Gear
20	58038600	Washer, 2.1φ
21	58037900	Drive Gear
22	58037500	Drive Gear Ass'y
23	58037700	Loading Gear B
24	58038500	Cam Link
25	58038400	Lift Lever
26	58040300	Screw, 2.6×13 FC Type
27	58076000	Screw, 2.6×10 B Type
28	58038200	Tray Guide
29	58076100	Screw, 2.6×3 B Type
30	58038100	Roller Mount Ass'y
31	58037600	Roller
32		Main Chassis
33	58093200	Spring
34	58038000	Motor Spacer
35	58038900	Loading Motor Ass'y
36		Mecha Board Ass'y
37	58076200	Washer, 1.7φ
38	58076300	T. T. Ring
39	58076400	Clample Spring
40	58076500	Screw, 2.6×5 B Type
41	58076600	Screw, 2.6×8 B Type
42	58035100	Mecha, Spacer A
43	58035200	Cushion
44		Mecha Chassis
45	58035400	Mecha Spring A
46	58035500	Mecha Spring B
47	58093300	Motor Mount
48	58093400	Motor Spring
49	58036600	Drive Motor Ass'y
50	58036400	Leaf Switch
51	58092100	Shaft Holder C
52	58093500	Screw, 2.6 × 4 B Type
53	58092000	Shaft Holder B
54	58091800	Guide Shaft B
56	58091900	Shaft Holder A
57	58092600	Disc Motor Ass'y
58	58093600	Drive Spring
59	58037300	Drive Shaft Ass'y
60	58037400	Wheel Gear
61	58037200	Rack Gray
63	58093700	Rack Spring
65	58092300	Laser Pickup
66	58091700	Guide Shaft A
67	58038300	Lift Slider
69	58093500	Screw, 2.6 × 4 B Type
74	58077300	Leaf Switch
75	58038700	Drive Belt
76	58093800	Screw, 2×4 B Type
79	58093900	Washer 1.9φ

Parts List

Parts No.	Stock No.	Description
80	58094000	Cushion
81	58094100	Holder Plate
82	58094200	Washer 7.5φ
85	58094300	Tray Stopper Plate

< Set Section >

Parts List

Parts No.	Stock No.	Description
101	58220500	Screw Caution
102	58090400	Panel Tray
103	58220600	Front Panel Ass'y
103-1		Front Panel
103-2	58094510	Knob, PLAY
103-3	58094600	Knob, EJECT
103-4	58094700	Bracket, EJECT
103-5	58094400	Knob, ◀◀, ◀◀, ▶▶, ▶▶
103-6	58094900	Bind Tapping Screw, M3 × 6
104	58090900	Knob, POWER
105	58029810	Joint Knob, Power
106	58220700	Rod
107	58029610	Joint 2.5
108	58097700	Screw-Pick (Transit Screw)
△ 109	58220802	Power Transformer (UL, CSA)
△	58220805	Power Transformer (EU)
△	58220806	Power Transformer (BS,UK)
△	58220807	Power Transformer (AS)
△	58220801	Power Transformer (XX)
110	58074910	Foot
111	58075410	Case, Power SW
△ 112	58031600	Power Switch
113	58028500	Cover, Power SW
114	58220900	Plastic Rivet, 3 × 4.5
115	58090710	Knob, AUTO SPACE
116	58090810	Knob, Display
117	58094800	Bind Tapping Screw, M3 × 8
△ 118	58030100	Cord Bush (UL,CSA,EU,UK)
△ 119	58221000	Power Supply Cord (UL,CSA)
△	58221100	Power Supply Cord (AS)
△	58075300	Power Supply Cord (XX)
△	58221200	Power Supply Cord (EU)
△	58221300	Power Supply Cord (BS,UK)
120	58221400	2P Ouput Terminal
121	58090310	Bonnet
122	58220900	Plastic Rivet, 3 × 4.5
123	58221500	3P AC Socket (XX)

6. PARTS LOCATION & PARTS LIST

6-1. Main Board (Stock No.58224400)

Parts List

Parts No.	Stock No.	Description
• Transistor		
Q302,308	46078801	2SC2458
Q305	07194701	2SA1015
Q311	46118801	2SC2878
Q318,319	46078801	2SC2458
Q506	46078701	2SA1048
Q507,508	46118801	2SC2878-B
Q901	46078701	2SA1048GR
Q902	46118801	2SC2878-B
Q904,908	58032300	2SD1413
911		
Q906,910	58078600	2SA966-Y
Q912	07194701	2SA1015
• FET		
Q504,505	58031800	2SK365-BL
Q903,905	58031800	2SK365-BL
907,909		
• IC		
Q301	58221800	TA7354P
Q303	58033300	PST520D-T
Q304	58221900	TMP-4740N-5537
Q306	58223800	TC9200F
Q307	58223900	TC9201F
Q308	58224000	TC5518BFL-20
Q309	58222000	TA8101N
Q310	58222300	NJM3403AD
Q312	58095400	NJM2904D
Q313	58222200	TC4053BP
Q314,315	58222100	TA8102P
316,317		
Q501	58222400	TD6709N
Q502	58222600	TD6102P
Q503	58222500	NJM2068D-D
• Diode		
D301 ~ 306	58031500	1SS176
Δ D901,902	58031500	1SS176
D903,909	58223000	SIVB10
D904,906	58222700	04AZ-6.2Z
D905,907	58222800	04AZ-5.6Y
D908	58222900	04AZ-9.1Y
Z501,502	58223400	Low Pass Filter
Z503	58223500	XTAL X-HC43U-67.738M
L501	58223700	0.22μH Inductor
R301	58223600	2.2KΩ × 4 A.R.
R302	58079300	5.6KΩ × 6 A.R.
R309	58223100	100KΩ S.V.R., Tracking Balance
R337	58223100	100KΩ S.V.R., Tracking Error Offset
R339	58223100	100KΩ S.V.R., Focus Error Offset
R342	58223300	20KΩ S.V.R., Focus Balance
R376	58223200	50KΩ S.V.R., Disc Motor Brake
R501,502	58223200	50KΩ S.V.R., Analog Output Offset
Δ R906	00120000	1Ω 1/2W F.R.
Δ R907	00121200	2.2Ω 1/2W F.R.
Δ R908	00120000	1Ω 1/2W F.R.
J011	58221400	2P Output Terminal

6-2. Display Board (Stock No.58224500)

Parts List

Parts No.	Stock No.	Description
• Transistor		
Q201	46078701	2SA1048GR
Q202 ~ 206	58095800	2SC982TM
• Diode		
D201	58096200	Display Indicator, GL3H412
D202 ~ 207	58096000	TLUG-144
D203 ~ 206	58095900	TLS-144
D208 ~ 209	58031500	1SS176
211 ~ 220		
S201	58034500	Tact SW., EJECT
S202	58034500	Tact SW., REPEAT
S203	58034500	Tact SW., MEMORY
S204	58034500	Tact SW., DISPLAY
S205	58034500	Tact SW., DOWN
S206	58034500	Tact SW., UP
S207	58034500	Tact SW., PAUSE
S208	58034500	Tact SW., FB
S209	58034500	Tact SW., FF
S210	58034500	Tact SW., PLAY
S211	58090500	Tact SW., AUTO SPACE

6-3. System Control Terminal Board

Parts List

Parts No.	Stock No.	Description
• Transistor		
Q207	58096100	TC4011BP
T201	58224700	System Control Terminal, 10P

6-4. APC Board (Stock No.58224600)

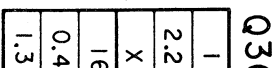
Parts List

Parts No.	Stock No.	Description
• Transistor		
Q101	58091200	2SC2236-Y
• IC		
Q102	58095400	NJM2904D
• Diode		
D101,102	58031500	1SS176
L101	58224100	Choke Coil, 10μH

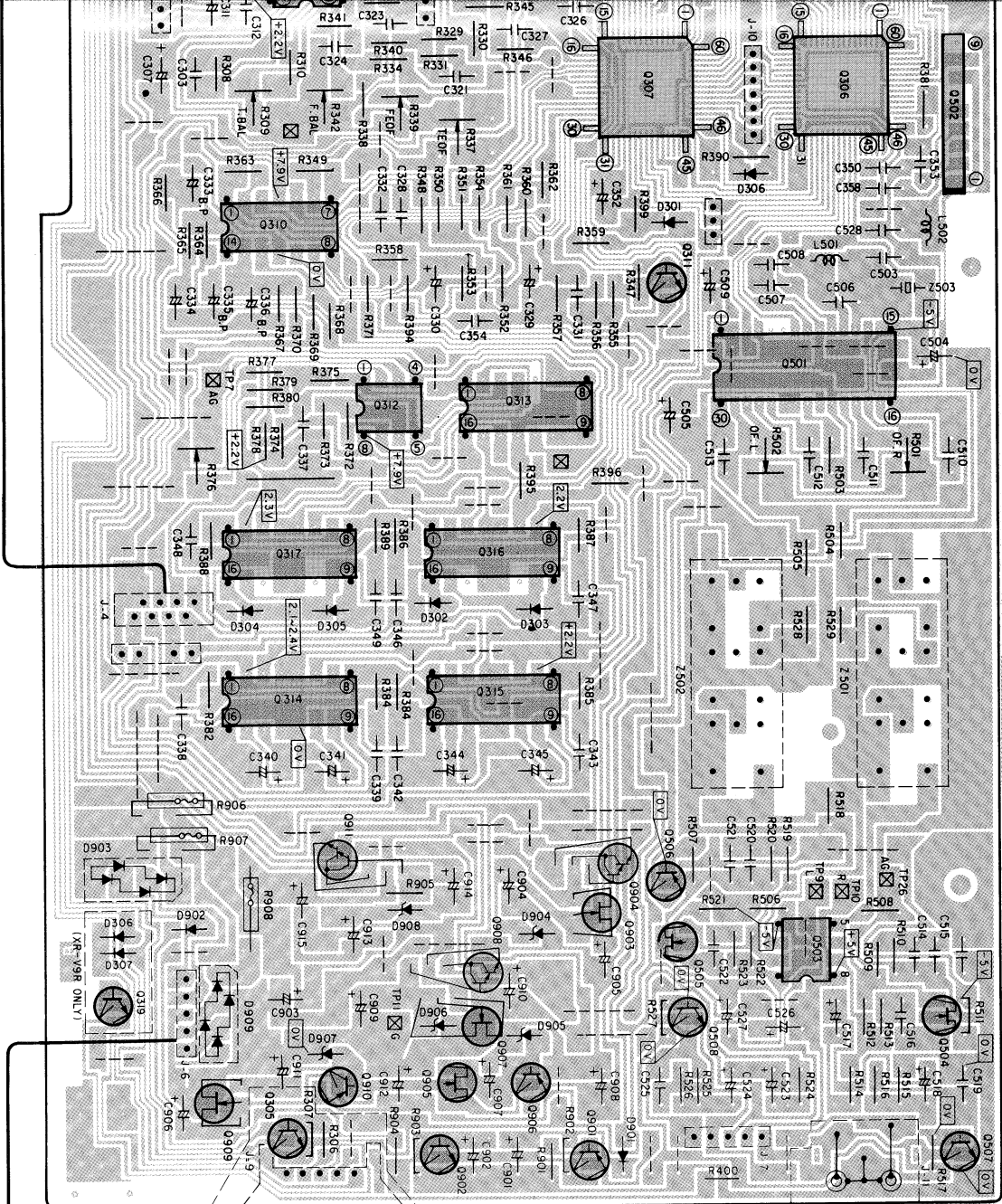
6-5. Power Switch Board

Parts List

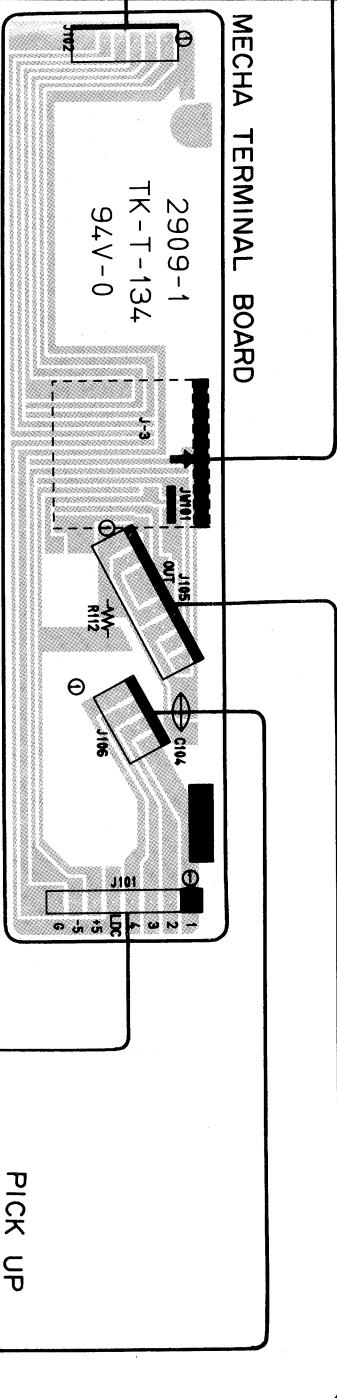
Parts No.	Stock No.	Description
Δ S901	58031600	Power Switch
Δ C916	58224200	4700PF 250V C.C. (EU,AS,UL,CSA,XX)
Δ C916	58224300	4700PF 250V C.C (BS,UK)



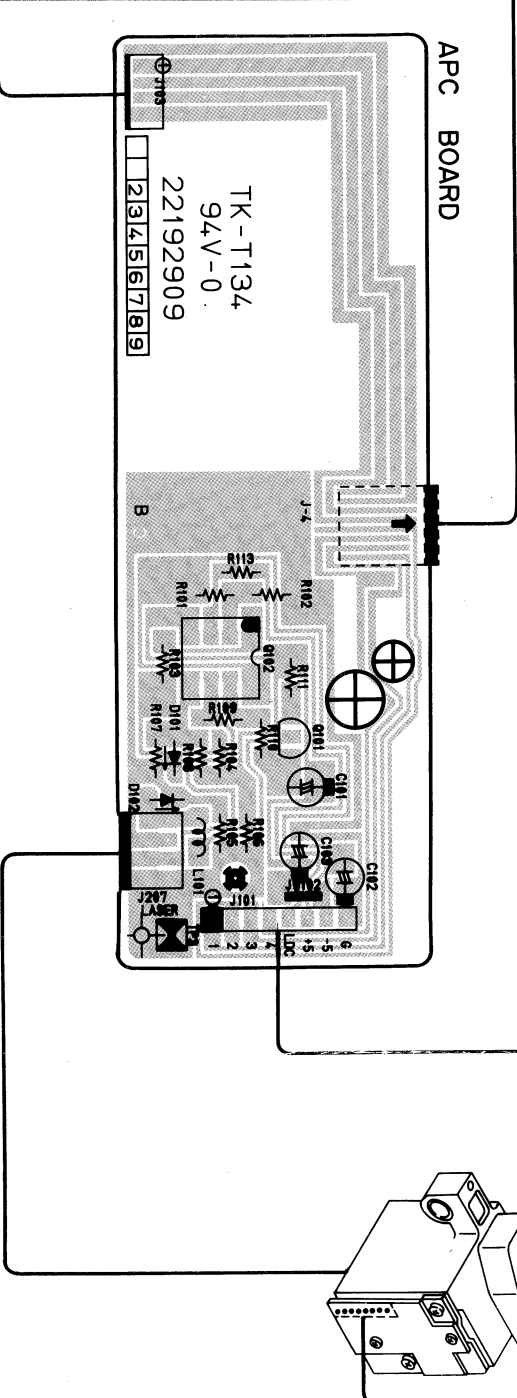
MAIN BOARD



MECHA TERMINAL BOARD



APC BOARD

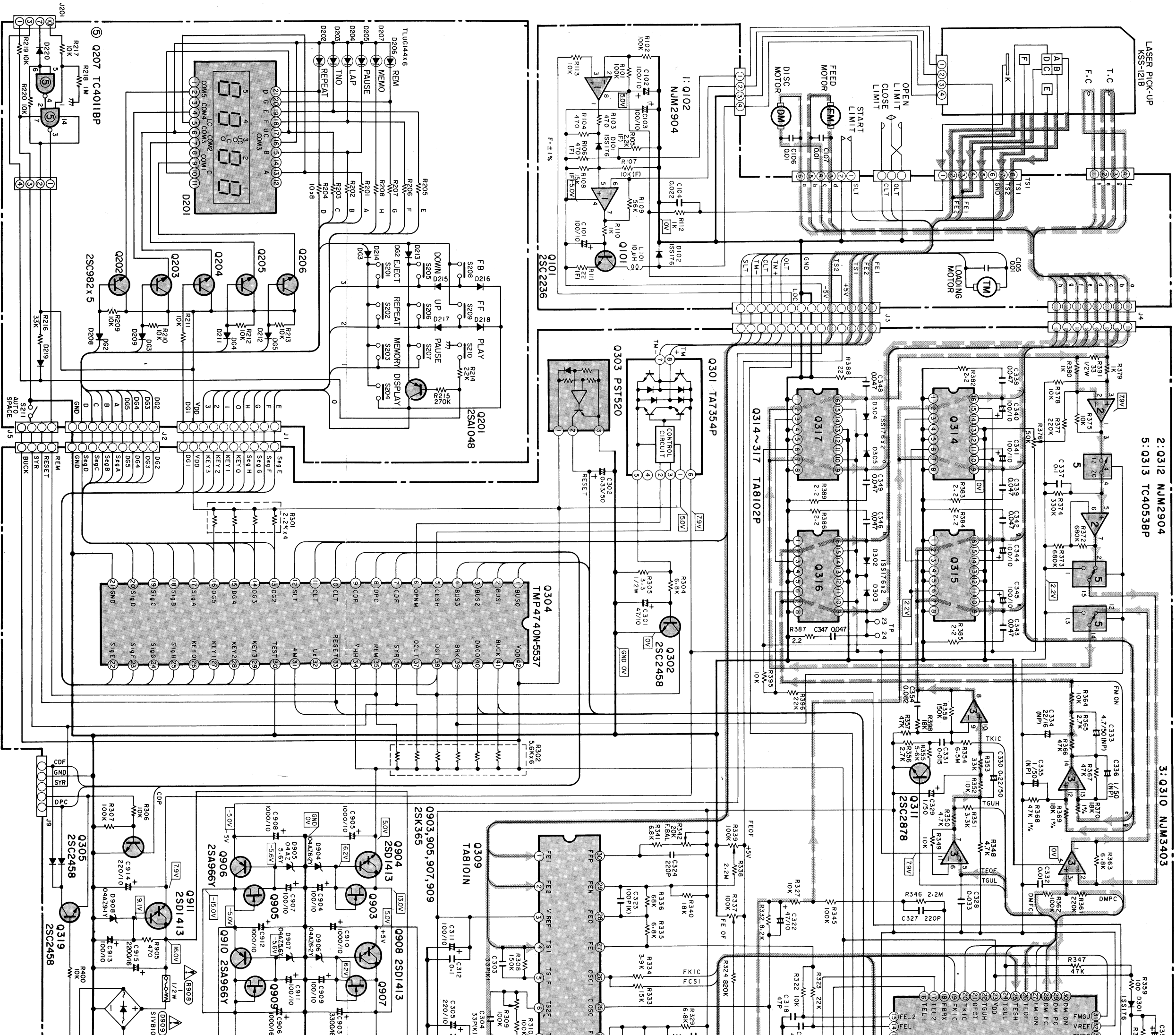


AC CONNECTOR

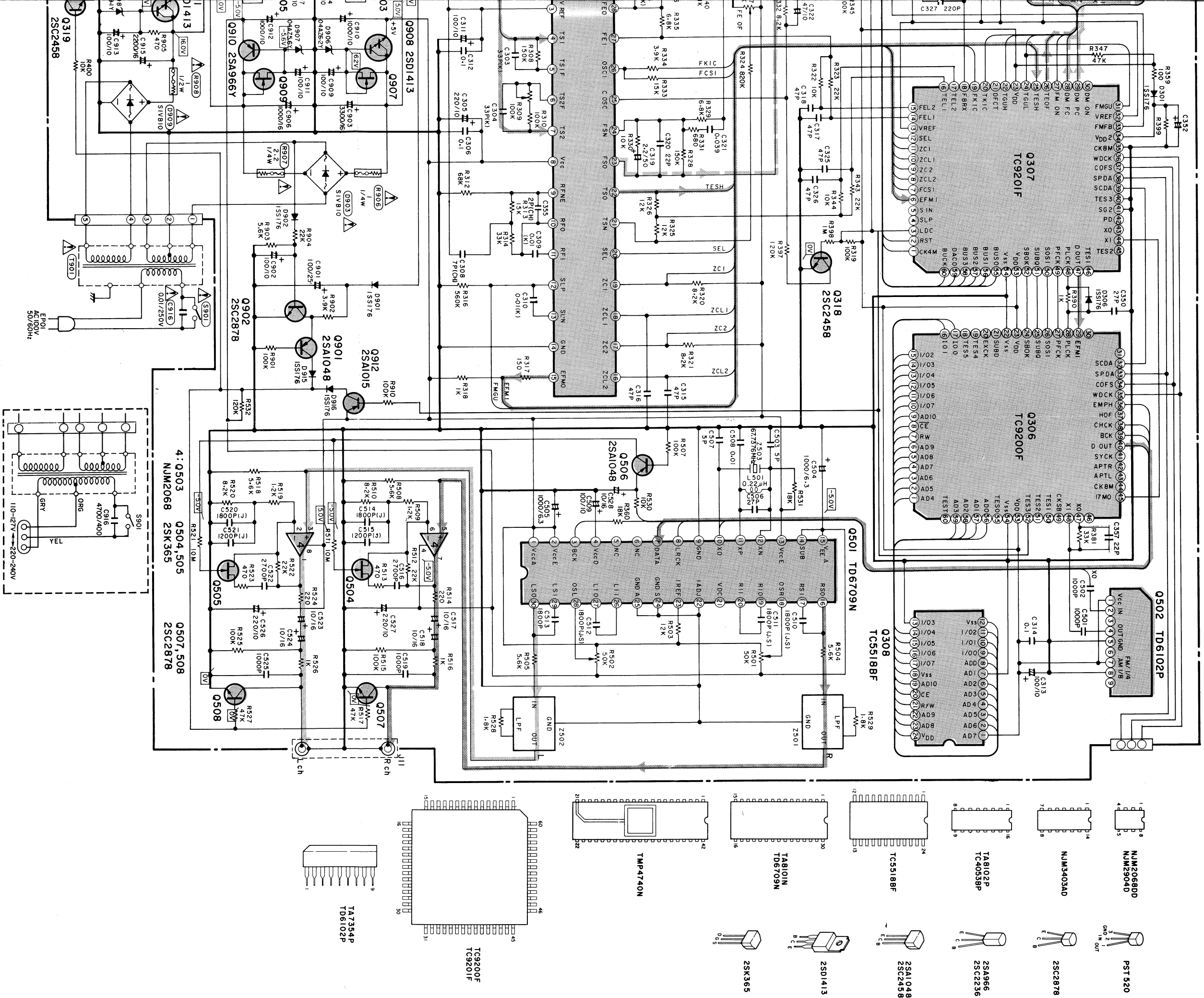
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	5.2 V	2.3 V	0.9 V	2.2 V	2.0 V	2.1 V	0 V	5.2 V
X	X	2.2 V	X	1.5 V	1.5 V	X	5.1 V	X	1.8 V	2.2 V	2.2 V	X	0 V	2.5 V
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0.4 V	2.5 V	1.1 V	2.5 V	5.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.2 V	2.7 V	2.2 V	2.2 V	2.2 V	2.2 V
1.3 V	2.4 V	1.1 V	2.5 V	2.6 V	2.2 V	2.2 V	2.1 V	2.2 V	2.1 V	2.6 V	2.2 V	2.2 V	2.1 V	2.1 V

no disc loaded, power on
voltage during disc playback

7. SCHEMATIC DIAGRAM



- Design and specifications subject to change without notice for improvement.
- La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2.2V	2.2V	2.2V	2.2V	2.2V	2.2V	2.2V	5.2V	2.3V	0.9V	2.2V	2.0V	2.1V	0V	5.2V
X	2.2V	X	1.5V	1.5V	X	5.1V	X	1.8V	2.2V	2.2V	X	0V	2.5V	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	
2.5V	1.1V	2.5V	5.2V	2.2V	2.2V	2.2V	2.2V	2.2V	2.7V	2.2V	2.2V	2.2V	2.2V	
2.4V	1.1V	2.5V	2.6V	2.2V	2.2V	2.1V	2.2V	2.1V	2.6V	2.2V	2.2V	2.1V	2.1V	

The voltages are measured as STOP mode.
All voltages are measured with a 10MΩ/DC electric voltmeter.

Δ is Safety Part.
Use only replacement parts recommended by the manufacturer.

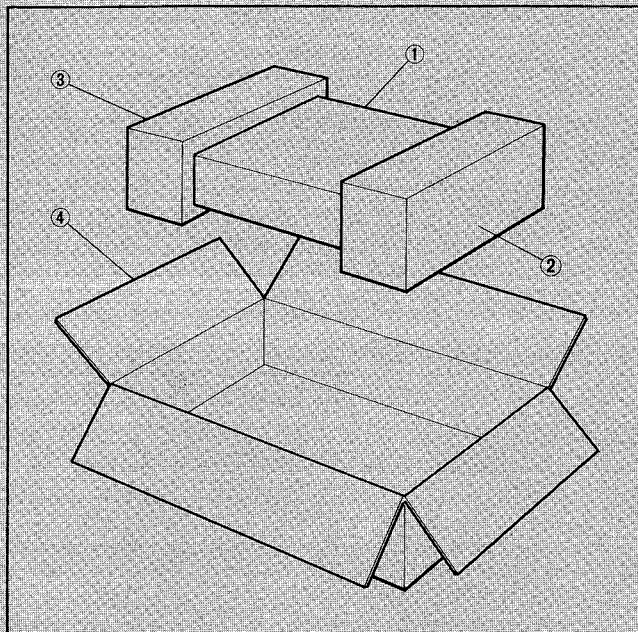
Schematic diagram is subject to change without notice.

8. PACKING LIST

Parts No.	Stock No.	Description
1	58097500	Vinyl Bag
2	58095000	Styrofoam Packing (Front)
3	58095100	Styrofoam Packing (Back)
4	58221600	Carton Case

9. ACCESSORY LIST

Stock No.	Description
58221700	Operating Instruction
58048600	Pin Plug Cord



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SANSUI ELECTRONICS CORPORATION

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